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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,571	09/03/2004	Kazuyuki Yamane	2004-1232A	3093
513 7590 06/27/2007 WENDEROTH, LIND & PONACK, L.L.P. 2033 K STREET N. W. SUITE 800 WASHINGTON, DC 20006-1021			EXAMINER THAKUR, VIREN A	
			ART UNIT 1761	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/506,571

Applicant(s)

YAMANE ET AL.

Examiner

Viren Thakur

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 25-29, 31-33 and 39-48 is/are pending in the application.
- 4a) Of the above claim(s) 43-48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 25-29, 31-33 and 39-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 8, 2007 has been entered.

***Response to Amendment***

2. As a result of the cancellation of claims 34 and 35, the rejection of claim 35 under 35 U.S.C. 112, first paragraph has been withdrawn.
3. As a result of the amendment to instant claim 25 and the cancellation of claim 35, the rejection of claims 25-35 under 35 U.S.C. 112, second paragraph has been withdrawn.
4. As a result of the cancellation of claim 35, the rejection of claim 35 under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (US 6022913) in view of Su (US 3804938) has been withdrawn.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. **Claims 25-29, 31-33, 39, 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (US 6022913) in view of Shiiki et al. (US 6245437).**

Tanaka et al. disclose a heat treating method for a packaging product, comprising providing a packaging product formed by enclosing a content material within a packaging material (Column 10, Lines 51-57) comprising at least a layer of hydrophilic gas-barrier resin such as polyamides (Column 8, Lines 23-35). Tanaka et al. further disclose wherein said package is retort heated in hot water (Column 3, Lines 15-59). Tanaka et al. additionally disclose wherein a water-soluble compound comprising an inorganic electrolyte is added to the water (Column 10 Line 63 to Column 11, Line 6; Column 11, Lines 12-14). An electrolyte is an ionic substance, such as a salt or a metal, both of which have been disclosed by Tanaka et al.

Tanaka et al. teach a broad range of polyamides, as cited on Column 8, Lines 27-35), such as Nylon 6 but is silent in teaching a specific polyamide such as polymetaxylylene adipamide (MXD6) or ethylene vinyl alcohol or a glycolic acid copolymer, as recited in instant claim 25. Regarding instant claims 28-29, Tanaka et al. are silent in specifically disclosing wherein the hot water contains the water-soluble compound at a concentration exceeding 0.1 wt. % and further wherein the hot water contains the water-soluble compound at a concentration of at least 1 wt. %. Regarding instant claims 32 and 33, Tanaka et al. do not specifically disclose wherein the water-soluble compound is selected from the group consisting of sodium chloride, magnesium chloride and potassium chloride; and further wherein the specific water soluble compound is sodium chloride.

Shiiki et al. teach a gas barrier composite film comprised of a polymer of glycolic acid for use in food packaged materials that undergo high-temperature, high humidity conditions, such as retorting (Column 2, Lines 15-28; Column 11, Lines 34-46).

In summary, both Tanaka et al. and Shiiki et al. are similar in that they teach multilayer films that can withstand the high temperature and high humidity conditions of process such as retort. Tanaka et al. teach wherein the film can comprise dual, triple or multilayers. Shiiki et al. teach that polyglycolic acid when used in place of polyamide results in "a composite film having sufficient properties for a packaging material for food and goods which require a treatment under high-temperature and high humidity conditions (Column 2, Lines 15-22). Shiiki et al. further teach

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wherein under high temperature and high humidity conditions, that polyamide have provided insufficient gas barrier properties (Column 1, Lines 33-40). Therefore, given the teachings of Shiiki et al., it would have been obvious to one having ordinary skill in the art to use a polyglycolic acid film as opposed to the polyamide film of Tanaka et al., for the purpose of ensuring that the film maintains its gas barrier properties during high temperature and high humidity conditions and which provides long term storage.

As recited in instant claims 26 and 27, Tanaka et al. disclose boiling treatment below 100°C and retort treatment above 100°C (Column 10, Lines 58-62). As recited in instant claims 31 and 32, Tanaka et al. disclose wherein the water-soluble compound is a water soluble inorganic salt (Column 11, Lines 12-14). Regarding instant claim 39, Tanaka et al. disclose wherein the packaging material comprises a multi-layer structure (Column 3, Lines 15-25). Regarding instant claim 41, Tanaka et al. disclose wherein both layers are gas barriers (Column 8, Lines 23-35). Tanaka et al. disclose wherein the at least two layers of laminated film comprise an outermost layer having a specified function and layers comprising a thermoplastic resin. The resins disclosed, such as polyamide and nylons are known gas barriers and further have hydrophilic properties.

Regarding instant claims 28-29, on column 11, lines 2-6, Tanaka et al. teach wherein the concentration of the metal ion is at least 1ppm (0.0001 percent) but can be greater based on the volume of the hot water and the mass of the package to be treated. Additionally, on column 12, lines 21-23, Tanaka et al. teach wherein the concentration of the metal ions is in the range of 1 ppm (0.0001 percent) to the saturation concentration. At the saturation point, the metal is no longer soluble in the water. This point is also known as the solubility point. Tanaka et al. further teach wherein the metal ion can be obtained from potassium or magnesium salts. One having ordinary skill in the art would have recognized that the common salt of potassium or magnesium is the chloride. In this case, potassium chloride has a solubility of approximately 36 grams per 100 grams water at 25°C. At saturation, this is equivalent to 26.4 percent. Therefore, it would have been obvious given the teachings of Tanaka et al. and the knowledge of one having ordinary skill in the art that the amount of the water soluble compound could be used at a concentration greater than 0.1 weight percent and a concentration greater than 1 weight percent. Such a modification would ensure that the metal ions permeate into the outermost layer of the container to ensure that the outermost layer maintains its gas barrier properties.

Regarding instant claims 32 and 33, as discussed above, Tanaka et al. teach wherein the metal ions can be obtained from magnesium and calcium for practicality. Further, Tanaka et al. teach wherein said ions can be obtained from the salts of these compounds (Column 11, Lines 2-14). Additionally, Tanaka et al. teach wherein the metal ions can be obtained from city or well water. One having ordinary skill in the art would recognize that obtaining such ions from city or

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well water suggest an easily accessible means for obtaining said ions. Nevertheless, the purpose of the invention of Tanaka et al. is to obtain the metal ions one having ordinary skill in the art would have recognized the commonality of precipitating the ions from salts. (This is also a common problem also recognized by Applicants). Therefore to use magnesium chloride, potassium chloride or sodium chloride would not have provided a patentable feature over the prior art, since the use of any of the above salts up to their saturation point (as disclosed by Tanaka et al.) would result in fewer free water molecules and thus lower kinetic energy within the water solution. This is an intrinsic feature of incorporating a soluble ionic compound into water. Although Tanaka et al. are more concerned with maintaining the gas-barrier properties of the container after heat treatment, opalescence cannot be prevented during heat treatment of a hydrophilic resin. However, since Tanaka et al. disclose incorporating an ionic compound into the water, upon heating a container comprising a hydrophilic resin prevention of the opalescence of the hydrophilic resin would have intrinsically resulted from the method as disclosed by Tanaka et al. Even further still, Tanaka et al. wherein the gas layer may suppress coloring of the molded product due to heating (Column 6, Lines 8-11). The heating is performed in a retort process using water in which salt has been dissolved, as discussed above. Therefore, this suggests to one having ordinary skill in the art that there would have been an interaction between the outer layer and the solution during heating, which would have resulted in suppression of coloring to the molded product due to heating.

8. **Claims 25, 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (US 6022913) in view of Ossian (US 4818592) and Mitsubishi Gas Chemical Company.**

Regarding instant claims 25 and 39, Tanaka et al. is taken as applied above in paragraph 7. Tanaka et al. further teach an outer surface layer comprising a crosslinked polymer polyvinyl alcohol and poly(meth)acrylic acid that further provides oxygen gas barrier properties that do not change after being subjected to hot-water treatment and are not decreased below the level before hot water treatment.

Tanaka et al. is silent in teaching wherein the hydrophilic gas-barrier resin layer is disposed as a surface contacting the hot water, as recited in instant claim 40 and wherein the hydrophilic gas-barrier resin layer is selected from the group consisting of ethylene-vinyl alcohol copolymer, polymetaxylene adipamide (MXD6) and glycolic acid (co-) polymer.

Ossian teaches a multilayer film used for packaging which is exposed to retort conditions which are characterized by their toughness after retort processing (Column 3, Lines 34-37).

Ossian further teach that polyolefins are suitable for use as the inside heat seal layer of a retortable pouch but the permeability of polyolefins to water is greatly increased at retort type temperatures (Column 2, Lines 59-64). Even further still, since the polyolefins become relatively impermeable to water upon cooling, the moisture within the ethylene vinyl alcohol (EVOH) layer becomes trapped between the layers. (Column 2, Line 65 to Column 3, Line 2). Using nylons as the outside layer, Ossian teaches, providing sufficient permeability to moisture to permit the escape of moisture from the internal hydrophilic layer (EVOH); yet providing sufficient impermeability to prevent accidental wetting of the package without harm to the oxygen barrier properties (Column 3, Lines 7-13). Ossian further teaches that nylons are not greatly affected by heat or cold (Column 3, Lines 13-14) and lists nylons that have been known to be capable of handling retort type temperatures (Column 5, Lines 60-68).

Mitsubishi Gas Chemical Company is only relied on to teach that MXD6 has been well known to be capable of handling retort-type temperatures.

The combination of Ossian and Mitsubishi Gas Chemical Company teaches that using a nylon, such as MXD6 provides an outer layer which is not greatly affected by heat or cold, such as during retort, which preserves the oxygen barrier properties of the internal hydrophilic layer (such as EVOH) and the combination of which retains their toughness and flexibility after retort (Column 3, Lines 54-68). Similarly, Tanaka et al. teach an outer contact layer whose gas barrier properties do not change after being subjected to a hot-water treatment and is not decreased below the level before hot water treatment. Similar to Ossian, the gas barrier of Tanaka et al. also protects a hydrophilic gas barrier material. Given that the combination of Ossian and Mitsubishi broadly teach an outer layer that is also not greatly affected by heat and that also preserves the oxygen barrier properties of the film after retort, it would have been obvious to one having ordinary skill in the art to use MXD6 for the outer contact layer of Tanaka et al., since both similarly teach a layer that is minimally affected by the high temperature and high moisture retort treatment process.

### ***Response to Arguments***

9. Applicants remarks on page 7 that polyvinyl alcohol is not a gas barrier resin have been fully considered but are not persuasive. Applicant further states that since polyvinyl alcohol is a water soluble polymer that it cannot be used as a gas-barrier material and cannot be compared to ethylene vinyl alcohol copolymer. Regarding the gas-barrier properties of polyvinyl alcohol, the Examiner disagrees. Tanaka et al. teach on column 1, lines 38-49 teach that polyvinyl alcohol is hydrophilic and has excellent gas barrier properties under dry conditions. Simply because a

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polymer is water soluble does not mean that it does not have gas barrier properties. The Examiner cites the tables of the reference "Permeability and Other Film Properties of Plastics and Elastomers to show the gas and moisture permeability of polyvinyl alcohol, ethylene vinyl alcohol copolymer.

Applicant further states that Tanaka et al. disclose the formation of a gas-barrier layer comprising a poly(meth)acrylic acid crosslinked with polyvalent metal ions. The Examiner asserts that in one embodiment, the outerlayer comprises a poly(meth)acrylic acid crosslinked with a polyvinyl alcohol which subsequently forms an *ionic* crosslink (Column 11, Lines 42-50).

On page 8 of the remarks, Applicant states that Tanaka et al. disclose the formation of a gas-barrier layer comprising a poly(meth)acrylic acid crosslinked with polyvalent metal ions. The Examiner asserts however, that the claims recite wherein at least one of the layers comprises a hydrophilic gas-barrier resin. Tanaka et al. teach wherein the film can be multilayered as cited on Column 10, Lines 28-29. Therefore, one of the layers comprises a thermoplastic resin such as a polyamide like Nylon 6 (Column 8, Lines 23-35). Nylon 6 is considered a hydrophilic gas barrier.

On page 10, Applicant states that Shiiki et al. fail to remedy the deficiencies of Tanaka et al.; specifically that the substitution of the polyglycolic acid barrier resin for the crosslinked gas-barrier resin of Tanaka et al. would change the intrinsic nature of the system of Tanaka et al. Instant claim 25 recites "providing a packaging product formed by enclosing a content material within a packaging material *comprising at least a layer of hydrophilic gas-barrier resin selected from the group consisting of...*" Therefore, the packaging material can have more than one layer provided that one layer is selected from the group consisting of..." The Examiner asserts however, that Tanaka et al. teach wherein the film can comprise dual, triple or multilayers and wherein one of the layers is a thermoplastic resin, such as a polyamide like Nylon 6. Shiiki et al. teach that polyglycolic acid when used in place of polyamide, results in "a composite film having sufficient properties for a packaging material for food and goods which require a treatment under high-temperature and high humidity conditions (Column 2, Lines 15-22). Shiiki et al. further teach that under high temperature and high humidity conditions, polyamides have provided insufficient gas barrier properties (Column 1, Lines 33-40). Therefore, given the teachings of Shiiki et al., it would have been obvious to one having ordinary skill in the art to use a polyglycolic acid film as opposed to the polyamide film of Tanaka et al., for the purpose of ensuring that the film maintains its gas barrier properties during high temperature and high humidity conditions and which provides long term storage.



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**Conclusion**


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Viren Thakur whose telephone number is (571)-272-6694. The examiner can normally be reached on Monday through Friday from 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on (571)272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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6/22/07